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INTRODUCTION

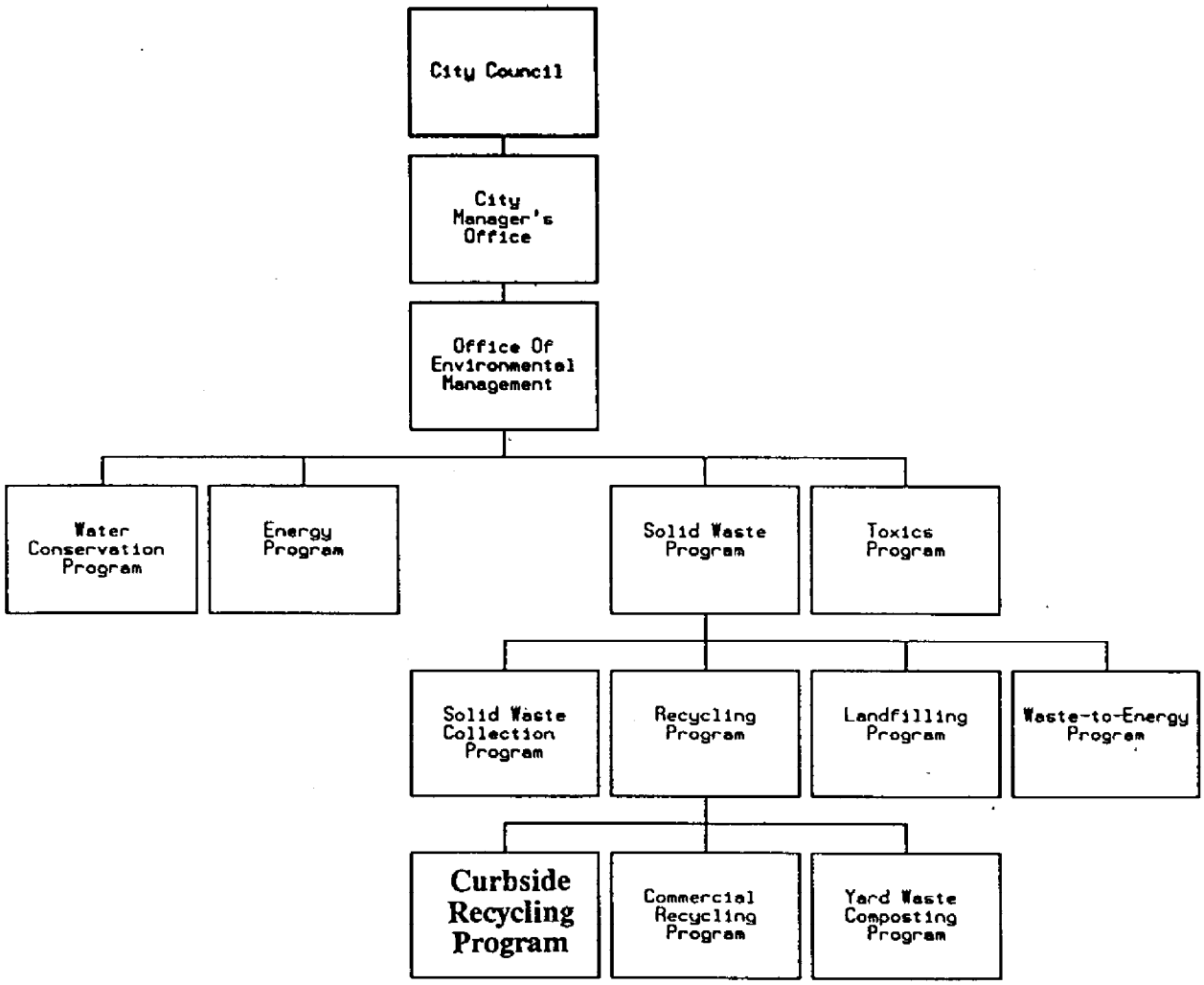
In accordance with the City Auditor's 1988-89 Audit Workplan, we reviewed the contract covering the City's Curbside Recycling Program. We conducted this audit in accordance with generally accepted government auditing standards, and limited our work to those areas specified in the Scope and Methodology section of this report.

BACKGROUND

Program Organization, Staffing And Budget

The City of San Jose operates a Curbside Recycling Program to implement one of the City Council's 1983 waste reduction goals. That goal is to reduce the City's waste stream 25 percent by 1990.

The Curbside Recycling Program is a component program of the Solid Waste Program. The organizational structure in which the Curbside Recycling Program exists is as follows:



Staff assigned to administer the Curbside Recycling Program include the following contract positions:

CLASSIFICATION	NO. OF POSITIONS
Recycling Specialist	1.0
Recycling Assistant	1.0
Total Positions	2.0

In addition, the program receives management and clerical support from the Solid Waste Program's administrative unit. The cost of this support is not allocated to the Curbside Recycling Program.

In 1989-90, the Curbside Recycling Program has a budget of $2,559,432. This budget is allocated to personal and non-personal expenditures, as follows:

OBJECT CLASS	BUDGET
Personal	$97,755
Non-Personal	2,461,677
Total 1989-90 Budget	$2,559,432

The program's personal budget covers the compensation of the two contract positions described above and additional positions that are needed to carry out planned new projects. These projects include a recycling promotion project and a mixed waste paper recovery project. The non-personal budget mainly covers about $2,060,800 for the recycling contract with Waste Management Incorporated (WMI) and $372,197 for contracts on the new projects planned for the year.

Program And Contract Development

The Curbside Recycling Program began in May, 1985 with a pilot program providing collection service to about 20,000 homes in two zip code areas in the Berryessa and Willow Glen areas. Empire Waste Management of Santa Rosa, California provided the collection service. The City paid the contractor $139,601 during the first fourteen months of the program from May, 1985 to June, 1986. According to OEM, the monthly participation rate in the program during that period averaged 41 percent. This was well above the 25 percent level of participation the City had targeted for the pilot program.

Given the success of the pilot program, the City Council approved expansion of the Curbside Recycling Program. In April, 1986, the City signed a second contract with Empire Waste Management to expand the pilot program to a total of 60,000 homes. The City agreed to pay the contractor $725,000 in 1986-87. On August 28, 1986, three and a half months into the second contract, the City's garbage contractor, WMI, acquired Empire Waste Management. On February 20, 1987, the City entered into a recycling contract with WMI. This contract superseded the second contract and expanded recycling services city-wide from about 60,000 to 179,000 residences. The contract set WMI's base compensation at $1.8 million starting with the 1987-88 fiscal year. Beginning in 1988-89, WMI's total compensation is adjusted yearly based on changes in the Consumer Price Index and the Diesel Fuel to Commercial Customers Index published by the U.S. Department of Labor. WMI's contract term runs through June 30, 1992.

Scope Of Services

The current contract requires WMI to distribute three stacking plastic containers to each eligible residence for a total of 175,000 sets of containers. Should the City request WMI to distribute more than 175,000 sets, the City will pay for the extra containers and their distribution. WMI collects the recyclable materials (newspaper, glass, plastic softdrink bottles, aluminum and tin cans) once each week, on the same day of the week as garbage collection service. In addition, the contract requires WMI to operate a recycling center in the City where the recyclable materials are to be processed to market specifications. Under the contract, WMI owns and is responsible for selling the recyclable materials. Further, the contract requires WMI to:

- Have a local manager charged with the supervision of the recycling operations;
- File monthly project reports, quarterly project status reports, annual reports and quarterly salvage revenue statements;
- Prepare a packet of information promoting the City's Curbside Recycling Program;
- Assist, upon City's request, in preparing a listing of the non-participating households in each service area; and
- Maintain a performance bond and specified insurance coverages during the contract term.

City Revenues From Recycling

The City derives two types of recycling revenues from its recycling contract with WMI. The first type, called "salvage revenue," accrues from the sale of recyclable materials. Under the recycling contract, WMI pays the City 50 percent of quarterly sales that exceed $335,400. Conversely, if quarterly sales fall below $335,400, the City pays WMI for 50 percent of the shortfall. The quarterly salvage revenues or "losses" are applied to the City's service fee payments to WMI. Thus, salvage revenues reduce the City's service fee payments while salvage "losses" increase them. In 1986-87 and 1987-88, salvage revenues generated $28,168 and $152,183, respectively. In 1988-89, salvage revenues were $119,417, or 22 percent less than 1987-88. According to OEM, the revenue decrease resulted from a substantial drop in the price of recyclable newspaper during the year.

The second type of recycling revenue the City derives is from WMI processing materials at the recycling center that it collects from other jurisdictions or business premises in San Jose. These materials are called "non-curbside" materials. The recycling contract requires WMI to pay the City $3.50 per ton of such materials processed. The payments are to be made monthly and in the form of credits (reductions) to City's service fee payments to WMI. WMI reported credits totaling $3,557.96 in 1988-89.

Recycling Center Operations

Recycle America, a division of WMI, conducts the curbside recycling. Recycle America operates a recycling center in San Jose, at 1140 Campbell Avenue. Recycle America uses 20 trucks to bring recyclable materials to the recycling center. These trucks cover 17 routes on Mondays through Thursdays and 20 routes on Fridays. Recyclable materials include City residents' curbside recyclables, non-curbside recyclables collected from San Jose businesses, and non-San Jose sources which Recycle America services.

Each recycle truck has three separate bins for collection and unloading. The first bin (closest to the cab) holds glass; the middle bin holds aluminum cans, tin cans and plastic softdrink bottles; and the rear bin holds newspaper.

The truck drives onto a long scale which is linked to a computer in the control room. The truck and the unloading area are directly visible through the glass panels of the control room. The computer operator keys the truck and route number into the computer. This allows the operator to retrieve from the computer's memory the unloaded weight of the truck. The computer calculates and records the weight of each bin of materials by comparing the truck's unloaded weight, fully loaded weight, and weight as each bin is emptied.

The computer operator signals the driver to unload the truck bins containing glass and cans. The driver empties glass into one hopper and the commingled aluminum, tin and plastic containers into another. The driver

unloads newspaper in a separate area where it is stored until contaminants can be removed. Conveyor belts carry glass, aluminum, tin and plastic containers to pickers. Pickers remove contaminants and separate clear from colored glass. Another retrieves the plastic containers while conveyors carry the remaining aluminum and tin cans to a series of magnets which separate the tin from the aluminum. Recycled materials that arrive in the wrong bins are returned to the proper sorting bins. The aluminum, tin, plastic containers, and newspaper are baled when there are sufficient quantities and when there is time to do so.

Curbside Recycling Program Has National Recognition

According to OEM management, San Jose's Curbside Recycling Program has earned various awards and received national and international recognition from industrial, professional and civic organizations. For example, the Program was featured in an Environmental Protection Agency publication as well as various trade journals. In addition, other cities in the United States and Canada have requested information on the Program and tours of the recycling center. Further, the California legislature and the U.S Congress have asked San Jose to testify before various committees on the City's recycling program.

SCOPE AND METHODOLOGY

This audit report is the first of two reports covering the City's solid waste collection contracts with WMI. The second report will cover our review of the garbage collection contract and the related franchise fees WMI paid to the City.

We reviewed the City's recycling contract with WMI to determine if the contractor is in compliance with the contract. In addition, we reviewed the contractor's procedures and internal controls at its recycling center to determine whether they are adequate in 1) preventing the risks that are inherent to the operation, 2) ensuring the accuracy of reports the contractor submitted to the City, and 3) ensuring that the contractor gave credits to the City for the correct dollar amounts.

Our review included an assessment of the risks involved in the collection and reporting of recyclable materials, observations of the recycling center's operating machinery and equipment, interviews with City and WMI management personnel, and tests of contractor reports submitted to the City. Based upon our audit procedures, we developed recommendations for improving the contractor's internal controls and the City's monitoring of the recycling contract.

FINDING I

ADDITIONAL CONTROLS ARE NEEDED TO ENSURE THAT THE CITY RECEIVES ITS PROPER SHARE OF RECYCLING REVENUES

We reviewed the recycling contractor's procedures for collecting, processing and reporting recyclable materials. Our review revealed that additional controls are needed to ensure that contractor reported collections and sales are complete, accurate and reliable. Specifically, we determined that the contractor:

- Does not maintain adequate inventory records to 1) reconcile the tons of materials collected and disposed to the tons of materials in inventory, 2) investigate discrepancies, or 3) report reconciliation results to its management or the City;
- Does not report to the City in a timely manner the separate weights of aluminum and tin cans collected;
- Does not require collector-driver verification of weight tag information; and
- Does not produce computer generated weight tags that clearly distinguish between curbside and non-curbside collections.

In addition, we found that the OEM has not adequately monitored the recycling contractor's reports. For example, we identified that during the period July 1, 1986 through March 31, 1989, the contractor had submitted reports to OEM that did not satisfactorily account for $326,700 worth of collected recyclable materials. This was the result of inadequate OEM monitoring of contractor reports and flawed contractor reporting methods.

Accordingly, additional controls are needed to reduce the City's exposure to revenue losses.

Risks Associated With The Recycling Process

For the purpose of our review, we identified the inherent risks associated with the collection, processing and reporting of recyclable materials in the San Jose recycling center. We determined that the City is exposed to three basic risks:

1. Materials collected are not transported to the San Jose recycling center;

2. Materials processed at the recycling center, including non-curbside materials, are understated due to inventory losses or errors; and

3. Materials sold are understated.

We reviewed the contractor's internal controls to determine whether they adequately eliminate or mitigate the above-mentioned risks and as a means to assess the contractor's performance under the contract. Our review disclosed certain internal control weaknesses in the contractor's operations.

Contractor Does Not Maintain Adequate Inventory Records

The recycling contractor maintains records of collected materials by route, driver and type of material collected. The contractor summarizes daily collections in a Daily Productivity Log and a computer generated monthly summary. The monthly summary information is included in the

contractor's monthly and quarterly reports to the City. To account for the disposal of materials, the contractor maintains sales records from which summarized information is included in contractor's monthly and quarterly reports to the City.

The above-described records do not adequately account for the collection and disposition of recyclable materials. Specifically, the contractor does not report to the City 1) beginning inventories of recyclable materials by type of material, 2) adjustments to inventories such as contaminants (garbage and other non-recyclable materials), and 3) ending inventories of recyclable materials by type of material. In addition, our review revealed that the inventory records the contractor maintained were not reliable, and the contractor discontinued maintaining such records in September, 1988. As a result, certain internal control procedures that are designed to ensure accurate collection, sales and inventory information can not be performed. These procedures include 1) the reconciliation of materials collected and materials disposed to materials in inventory, 2) the prompt investigation of discrepancies, and 3) the reporting of reconciliation results to contractor management and the City.

Weights Of Aluminum And Tin
Cans Not Reported Promptly

A second internal control weakness observed in the contractor's operations relates to untimely reporting to the City of the separate weights of aluminum and tin. Aluminum carries the highest value of all the recyclables collected in the program. It is collected together with tin and plastic soda bottles and weighed as a single, commingled load from the truck bins. The

contractor reports monthly to the City the separate weight of the plastic bottles collected. However, the contractor reports aluminum and tin cans as a combined weight on its monthly reports. The contractor does not report separate weights for aluminum and tin until it files its quarterly report with the City. This delay, which in one instance we noted to be 94 days, increases the risk that the reported weights of the materials will be manipulated. In our opinion, a 94-day delay would make it easier for the contractor to understate the tons of aluminum collected and compensate for it by overstating the tons of tin collected. Further, we believe prompt recording and reporting of the separate weights of aluminum and tin would reduce the risk of contractor misreporting of aluminum and tin collections. Given the wide disparity in the prices of aluminum and tin, any contractor misreporting of collections could have significant revenue implications for the City. For example, in 1988-89, aluminum realized an average market value per ton of $2,020 while tin realized an average market value per ton of $25.

Collector-Drivers Do Not Verify Weight Tag Information

Materials that collector-drivers bring to the recycling center are weighed on a scale which is linked to a computer. The computer operator identifies each truck, route number, type of material being weighed, and the source (curbside or non-curbside) of the material. The computer prints this information, together with the weight of materials, on a weight tag. The collector-drivers do not see the information recorded on the weight tags. As a result, the risk of an undetected computer operator keying error is increased. This is especially critical when the error involves the source of

the materials. For example, if the operator incorrectly identifies curbside material as non-curbside material, the City could lose substantial revenues. Specifically, the City would receive only $3.50 per ton in processing fees for non-curbside materials. However, for the same materials identified as curbside materials, the City could receive as much as $1,000 per ton from subsequent sales.

In our opinion, the contractor needs to implement additional procedures to verify the information input onto weight tags. Such procedures could include the installation of electronic display equipment. This equipment would display the information being input onto weight tags and would be visible to the truck drivers. As a result, drivers would be able to see the information recorded on weight tags and notify the computer operator of any errors. Another procedure could involve using a second employee to verify the information the computer operator keys onto the weight tags.

Contractor's Weight Tags Need Revision

We noted that the recycling center computer prints the same series of numbers on weight tags for both curbside and non-curbside materials. In other words, weighting for both curbside and non-curbside materials are inter-mixed in a consecutive series of weight tag numbers. This negates the internal control of using serial numbers to account for a type of record or transaction. The use of separate serial numbers on weight tags for curbside and non-curbside materials would improve controls over the recordkeeping for curbside and non-curbside materials. In addition, the type and source of

materials weighed are identified on weight tags by code numbers only. Employees assigned to verify information on weight tags could do so more easily if more descriptive information was printed on the weight tag.

OEM Needs To Adequately Monitor Contractor Reports

Our review revealed that the OEM needs to improve its monitoring of the contractor's reports. Specifically, we noted that as of March 31, 1989, the contractor had not accounted for $326,700 worth of recyclable materials.

As a part of our audit, we reviewed the monthly and quarterly reports the contractor submitted to the City for the period July, 1986 through March, 1989. Our review revealed $326,696.79 in unaccounted tons of aluminum, newspaper, glass, tin and plastic as is shown in TABLE I.

TABLE I

SUMMARY OF CONTRACTOR REPORTED RECYCLABLE MATERIALS COLLECTED AND SOLD FROM JULY 1, 1986 THROUGH MARCH 31, 1989

	Aluminum	Newspaper	Glass	Tin	Plastic	Total
Reported Tons Collected	517.34	32,903.60	8,587.96	990.03	58.85	43,057.78
Reported Tons Sold	352.62	32,038.34	8,432.90	713.16	51.19	41,588.21
Unaccounted Tons	164.72	865.26	155.06	276.87	7.66	1,469.57
Estimated Value of Unaccounted Tons*	$253,238.76	$55,385.43	$9,449.47	$4,483.19	$4,139.94	$326,696.79

* Based upon the average market value per ton during 1986-87, 1987-88 and July 1, 1988 through March 31, 1989.

As TABLE I shows, 77 percent of the estimated market value of unaccounted materials was in aluminum. As a percentage of collections, the 164.72 unaccounted tons of aluminum represent 31.84 percent of the total contractor reported aluminum collections during the 33-month period. Based on 1988-89 market prices, aluminum was from four to eighty-two times more valuable than either plastic, glass, newspaper or tin.

It should be noted that according to the recycling contractor, as of the end of March, 1989, they had inventories of recyclables which partly accounted for the variances between reported collections and sales. As of March 31, 1989, the contractor reported the following inventories:

TABLE II
INVENTORY OF RECYCLABLE MATERIALS
AS OF MARCH 31, 1989

Aluminum	9.0 tons
Newspaper	425.0 tons
Glass	61.0 tons
Tin	12.0 tons
Plastic (PET)	0.5 ton
TOTAL	507.5 tons

(Source: Recycle America)

In addition, on August 22, 1989, the contractor provided OEM with the results of an analysis the contractor did of the cans/plastic curbside bins (which contain aluminum, tin and plastic) collected from July 3, 1989 through July 7, 1989 and July 10, 1989 through July 14, 1989. (See Appendix A). Essentially, the contractor concluded that based on its July 1989 analyses, the collected tin and aluminum weights it reported to the City from July, 1986 through March 1989 were wrong. Specifically, the results

of the contractor's July 1989 analysis were that the composition of the cans/plastic curbside bins were:

Tin	47.71%
Aluminum	24.46%
Plastic Soda Bottles	6.27%
Glass	6.78%
Garbage	5.27%
Scrap Metal	3.15%
Plastic Milk and Water Bottles	3.14%
Other Materials	3.22%
Totals	100.00%

(Source: Recycle America)

Further, the contractor assumes that its July 1989 analysis results are similarly applicable to the July 1986 through March 1989 reporting period. Accordingly, the contractor concludes the tons of aluminum and tin it originally reported to the City as being collected from July 1986 through March 1989 should now be reduced by 148.63 tons and 270.86 tons, respectively. The contractor arrived at this conclusion by applying the composition percentages noted during its July 1989 analysis to the tin and aluminum collections reported in July 1986 through March 1989, as is shown in TABLE III:

TABLE III

CONTRACTOR'S RECALCULATION OF TIN AND ALUMINUM COLLECTIONS REPORTED FROM JULY 1986 THROUGH MARCH 1989 BASED ON CONTRACTOR'S JULY 1989 ANALYSIS

	Tin	Aluminum	Plastic Soda Bottles	Glass	Garbage	Scrap Metal	Plastic Milk and Water Bottles	Other Materials	Total
Contractor Reported Tons Of Tin and Aluminum Collected From 7/86 - 3/89	990.03	517.34	----	----	----	----	----	----	1,507.37
Composition of Bins Analyzed in 7/89	47.71%	24.46%	6.27%	6.78%	5.27%	3.15%	3.14%	3.22%	100.00%
Contractor's Recalculation of 7/86 - 3/89 Tons Collected Based Upon Its 7/89 Analysis	719.17	368.71	94.51	102.20	79.44	47.48	47.33	48.53	1,507.37
Difference Between Contractor Reported Tons Collected From 7/86 - 3/89 And Contractor's Recalculated Tons	<270.86>	<148.63>	94.51	102.20	79.44	47.48	47.33	48.53	00.00

(Source: Recycle America)

Taking the inventory and the contractor's recalculation of aluminum and tin collections into account reduced the unaccounted tons of aluminum and tin to 7.09 tons and minus 5.99 tons, respectively.

While the contractor seems to have accounted for most of the "unaccounted tons" of aluminum and tin shown in TABLE I, some cautionary comments are appropriate. First, the unaccounted tons in TABLE I are based upon quarterly reports the contractor submitted to the City. It is significant that OEM did not detect these unaccounted tons, and

that these unaccounted tons accumulated over a thirty-three month period. In our opinion, this evidences a lack of OEM monitoring of reports the contractor is contractually required to submit. In addition, these contractor reports must be reliable if the City is to be assured that it is receiving its rightful share of recycling revenues. However, as TABLE I demonstrates, $326,700 worth of recyclable material was not accounted for as of March 31, 1989. Thus, based upon the contractor's own reports, the City was at risk for about one-half of the $326,700 in unaccounted tons of recyclable materials.

Further, the contractor now concedes that it submitted erroneous information to the City regarding the tons of materials collected during a nearly three-year period. In our opinion, this is a serious matter and steps need to be taken immediately to insure the accuracy of future reports.

Finally, the contractor's explanation for the unaccounted tons is the result of the contractor's own analysis of its July 1989 collections. As a result, the contractor's methodology raises two questions. First, it may not be reasonable to assume that recyclable collections during a two-week period in July 1989 are representative of collections made from July 1986 through March 1989. To the extent that July 1989 is not representative of the prior period, the contractor's methodology is flawed. Secondly, because the contractor has a vested interest in the results of its own July 1989 analysis, a prudent person should view those analysis results with caution and skepticism. Accordingly, in our opinion, OEM should obtain an independent analysis of recyclable materials collected to develop a composition rate for each type of material. In addition, OEM should

improve its monitoring of the contractor's activities to ensure that the contractor's accounting records and procedures produce reports which are timely, reliable and complete. To accomplish this, OEM should:

- Review and evaluate the adequacy of the contractor's procedures for calculating and reporting recyclable aluminum;
- Periodically review and test the contractor's Daily Productivity Logs and inventory records; and
- Contract with a consultant to evaluate and test the recycling contractor's scale and weigh-in computer program for accuracy.

CONCLUSION

Additional recycling contractor internal controls are needed at its recycling center to ensure that its reports to the City of materials collected, disposed, and inventoried are accurate and complete. These controls include 1) maintaining adequate inventory records and procedures, 2) prompt recording and reporting of the weights of collected materials, 3) verification of weight tag information, 4) using more descriptive information on weight tags, and 5) using separate serial numbers for curbside and non-curbside materials.

In addition, the OEM needs to improve its monitoring of the recycling contractor's reports to ensure the City receives its proper share of recycling revenues.

RECOMMENDATIONS

We recommend that the Office of Environmental Management:

Recommendation #1:

Determine the contractor's liability for unaccounted materials processed in the recycling center, and initiate action to collect that amount. (Priority 1)

Recommendation #2:

Request that the contractor establish an adequate inventory system for recyclable materials collected. (Priority 1)

Recommendation #3:

Request that the contractor promptly record and include in its monthly report to the City separate weights for collected aluminum and tin. (Priority 1)

Recommendation #4:

Request the contractor to revise its computer program to provide more descriptive information on weight tags and to use a series of numbers for curbside collections which is different from the series used for non-curbside collections. (Priority 2)

Recommendation #5:

Request that the contractor implement additional procedures to verify the information input onto weight tags. (Priority 2)

Recommendation #6:

Obtain an independent analysis of collected materials to develop a composition rate for each type of material. (Priority 2)

Recommendation #7:

Review and evaluate the adequacy of the contractor's procedures for calculating and reporting recyclable aluminum. (Priority 1)

Recommendation #8:

Review the contractor's Daily Productivity Logs on a sample basis and establish a schedule for performing periodic reviews of the logs. (Priority 3)

Recommendation #9:

Review the contractor's inventory records each month and verify, on a test basis, the accuracy and adequacy of the contractor's records and supporting documentation. (Priority 1)

Recommendation #10:

Periodically inspect the contractor's month-end physical inventory and compare it to the contractor's month-end inventory records. (Priority 1)

Recommendation #11:

Contract with a consultant to evaluate and test the contractor's scale and weigh-in computer program for accuracy. (Priority 2)

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Administrator's Response

Appendix A